

## Proceedings of CAVEPS 2005

*Alcheringa* Special Issue 1, 2006

L. Reed, S. Bourne, D. Megirian, G. Prideaux, G. Young and A. Wright (eds)

I have always considered 'Proceedings' volumes to be a particularly valuable form of publication. For starters, they cover a relatively narrow field and almost all papers will be of interest to people in that field. They usually include reviews as well as examples of current trends in research, which allow anyone looking for an overview to find such information in one place. Indeed I have often found "Proceedings" volumes to be a good resource for university students.

The volume under consideration, the *Proceedings of CAVEPS 2005* (a Conference on Vertebrate Evolution, Palaeontology and Systematics held in Naracoorte in 2005)) is an excellent example of a 'Proceedings' volume with content of both specialist and general interest. This is particularly the case with papers dealing with the Pleistocene extinction of the Australian megafauna, since this topic has even made it into daily newspapers recently.

Not surprising, given the venue for the conference, there are three papers dealing with Naracoorte Caves (stable isotope record, guano-derived deposits and fossil deposits). A fourth paper indirectly concerns Naracoorte Caves. Elery Hamilton-Smith reviews the life of Tenison Woods. The paper is fascinating, mainly because Tenison Woods was a very complex and extraordinarily active man (in several fields, including geology). Most people would know of him because of his relationship to Mary McKillop. Or is it *Saint* Mary McKillop? Last time I visited the Mary McKillop Museum in North Sydney, she was still one miracle short of the full deck.

Ernie Lundelius gives an interesting summary of the contributions to vertebrate palaeontology made by studies of cave sites throughout the world.

CAVEPS meetings are usually dominated by mammal and fish papers, but in this case there is only one fish paper, dealing with Devonian placoderms from New South Wales. However a paper by Gavin Young straddles the fish/tetrapod boundary. He discusses the status of two trackways and one jaw that have previously been accepted as the only Australian evidence of Devonian tetrapods. The paper also includes a good review of tetrapod origins and tetrapod interchanges between Gondwana and Laurussia.

Birds get a look-in, with one paper dealing with a Cenozoic songbird from Riversleigh and another dealing with a New Zealand late-Pleistocene cave avifauna. Peter Murray and Dirk Megirian describe one dromornithid, along with reptiles and mammals, from a presumed Oligocene fauna at Pwerte Marnte Marnte in the Northern Territory.

Except for a paper by Sue Turner on the UNESCO Geoparks program (well worth reading by anyone involved with paleontological as well as strictly geological aspects of tourism), and a paper by Roslyn Stemmler highlighting the use of fossils in educating and inspiring school children, the rest of the volume belongs exclusively to mammals.

Oliver Brown presents a thoughtful analysis of Tasmanian Devil extinction on the mainland, proposing a role for ENSO intensification. Most importantly, he suggests the mainland extinction occurred between 3,000 and 4,000 years ago and convincingly rejects the dates of 430 and 620 for mainland devils suggested by Archer and Baynes in 1972. Those dates were always very suspect, but they managed to get into the general literature as absolute.

Along the same lines, Peter Murray and Dirk Megirian provide, in a second paper, a great deal of data and a strong, thorough analysis concerning the origin of the thylacinids, based mainly on a Miocene thylacinid they describe herein. Steve Wroe and others have proposed that dasyurids were derived from a thylacinid relatively late in geological time. I was never comfortable with that unlikely scenario, and I think Murray and Megirian correctly highlight the difficulty of determining polarities. Their argument that thylacinids are a sister group to the plesiomorphic dasyurids is very convincing.

A new species of palorchestid is described by Katarzyna Piper, and Neville Pledge presents the first fossil record of sirenians in southern Australia.

A data-filled paper by Kenny Travouillon and the usual Riversleigh crowd is harder to place. It deals with mammal faunas from Riversleigh, but is mainly concerned with a detailed analysis of the many individual sites at Riversleigh. This is important material to have on record, but not recommended for light bedtime reading. The same is true of a companion paper by Mike Archer and 19 co-authors

## BOOK REVIEW

which presents species-level lists of the fauna from 80 Cenozoic sites at Riversleigh. This is done in a huge table which tabulates an immense amount of work, by many people over a long time.

The remaining papers deal with the fascinating and popular topic of Australian megafaunal extinctions, but first Richard Tedford, Rod Wells and Gavin Prideaux set the scene by discussing marsupial evolution and the turnover in species preceding the last glacial cycle (120-20 ka).

Rod Wells and nine co-authors report on the excavations at Black Creek Swamp on Kangaroo Island. An excellent table that summarises most of the species involved and their habitat is a good place to start for anyone not familiar with the megafauna. But this is also a paper that should be read by all graduate students because it is an excellent example of a complete study of an excavation. Not only the fauna, but also the stratigraphy, taphonomy and dating techniques are thoroughly and clearly set out. This paper may not represent good career management, as the authors could have spun at least four minor papers out of it, but it is terrific science.

In relation to the debate about megafaunal extinction, the opening sentence of a paper by historian Kirsty Douglas sums it up: "Debate about Pleistocene extinction was and is inflected by history, convention, politics and rhetoric". Despite the sloppy use of the word 'inflected', presumably the author meant 'modulated' not 'bent', the idea is good and well developed in this paper. The science is occasionally suspect (I don't think anyone believes human influences lead to dwarfing of megafaunal species for example), but there are some very interesting stories and insights in this paper.

Lyndall Dawson brings a physiological perspective to the extinction of large marsupial herbivores in middle and late Pleistocene Australia. This excellent review is not "inflected" or even "bent" by anything other than good, ecophysiological data provided by the work of, amongst others, Terry Dawson. Two short, but extremely useful, appendices summarise the position of marsupial herbivores in time and space (fossil site).

I have saved the best for last. There are three papers that make significant contributions to the megafaunal extinction debate. Firstly, Donald Pate and others present new carbon dates and review previous carbon dates from Naracoorte Wet Cave and conclude that "... results support other published data sets in relation to a continent-wide extinction of megafauna at ca. 46,000 years ago, and reject a late survival of megafauna at the site".

I have always thought that those who insist that prehistoric Aboriginal people were not responsible for the megafaunal extinctions put up a 'straw man' when arguing that blitzkrieg by overhunting was unlikely and a data-free concept. Tim Flannery of course draws the ire of this group by pointing out that environmental changes resulting from the use of fire could have been the mechanism, rather than "big game hunting". In this volume, Barry Brook and Christopher Johnson provide a model for the extinction of large species, *Diprotodon* in particular, as a result of low levels of exploitation of juveniles. Zoologists have long recognized that for most mammalian species the pressure by predators is against the young and juveniles more than adults. Brook and Johnson conclude that evidence for a sophisticated hunting toolkit and massive kill sites are not a necessary adjunct to overkill.

Finally, Richard Gillespie, Barry Brook and Alex Baynes use the GIGO (garbage in, garbage out) principle to cull the radiocarbon data set. Considerable reliable results stand the test to establish a human/megafauna overlap of about 3,900 years centred around 44,000 BP. They conclude that, "Our results rule out climate and environmental changes associated with the Last Glacial Maximum as contributing factors in Australian late Pleistocene megafauna extinctions". Sir Richard Owen, who clearly saw the essential nature of this debate 140 years ago, would have loved this paper.

M.L. Augee  
April 2007